

AMENDMENTS TO THE CLAIMS:

Claims 2, 5, 6, 8, 11, 12, 14, 15, 17, 18, and 20 have been cancelled.

B1

1. (Currently Amended) An optical device comprising:
a first medium having a thickness, the first medium defining a plurality of periodically spaced hollow portions ~~throughout a first layer of the first medium, the hollow portions~~ having a depth less than the thickness of the first medium; and
a second medium being dispersed within the hollow portions formed in the first medium,
wherein a first layer of the device forms a photonic crystal ~~and includes the first layer formed partially of the first medium, medium having a depth identical to the depth of the hollow portions,~~ and
wherein a second layer of the device is formed entirely of the first medium.

B2

3. (Currently Amended) An optical device according to claim 2 1 wherein the index of refraction of the second medium is greater than the index of refraction of the first medium.

4. (Currently Amended) A method of manufacturing an optical device having a first layer functioning as an optical waveguide layer and a second layer functioning as a base layer, the method comprising the steps of:
providing a resist layer on a surface of a first medium;
removing portions of the resist layer to form vacancies;
removing portions of the first medium corresponding to the vacancies to create cavities in the first medium, the depth of the cavities being less than a thickness of the first ~~medium; medium, and thereby defining the first layer and second layer;~~
removing the resist layer completely;
filling the cavities in the first medium with a second ~~medium; medium, thereby forming the optical waveguide layer;~~ and
removing any excess film of the second medium from the surface of the first ~~medium; medium,~~

B2
C2 wherein the index of refraction of the second medium is greater than the index of refraction of the first medium.

7. (Currently Amended) An optical device comprising:

B3 a first medium having a thickness, the first medium at least partially forming a first layer and a second layer of the optical device, the first layer having a plurality of periodically spaced protruding portions surrounded by hollow portions having a depth less than the thickness of the first ~~medium;~~ medium, the first layer having a depth identical to the depth of the hollow portions; and

a second medium being dispersed within the hollow portions surrounding the plurality of periodically spaced protruding portions of the first layer,

wherein the first layer is a photonic crystal, and the second layer is formed entirely of the first ~~medium.~~ medium, and

wherein the first layer and the second layer are integrated.

B4 9. (Currently Amended) An optical device according to claim 8 7 wherein the index of refraction of the second medium is greater than the index of refraction of the first medium.

10. (Currently Amended) A method of manufacturing an optical device having a first layer functioning as an optical waveguide layer and a second layer functioning as a base layer, the method comprising the steps of:

providing a resist layer on a surface of a first medium;

removing portions of the resist layer to form vacancies;

removing portions of the first medium corresponding to the vacancies to create cavities in the first medium, the depth of the cavities being less than a thickness of the first ~~medium;~~ medium, and thereby defining the first layer and second layer;

filling the cavities in the first medium with a second ~~medium;~~ medium, thereby forming the optical waveguide layer; and

removing the resist layer and any excess film of the second medium from the surface of the first ~~medium.~~ medium,

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wherein the index of refraction of the second medium is greater than the index of refraction of the first medium.

BS

13. (Currently Amended) An optical device having a first layer functioning as an optical waveguide layer and a second layer functioning as a base layer, formed by a method comprising the steps of:

- providing a resist layer on a surface of a first medium;
- removing portions of the resist layer to form vacancies;
- removing portions of the first medium corresponding to the vacancies to create cavities in the first medium, the depth of the cavities being less than a thickness of the first ~~medium;~~ medium, and thereby defining the first layer and second layer;
- removing the resist layer completely;
- filling the cavities in the first medium with a second ~~medium;~~ medium, thereby forming the optical waveguide layer; and
- removing any excess film of the second medium from the surface of the first ~~medium;~~ medium.

wherein the index of refraction of the second medium is greater than the index of refraction of the first medium.

B6

16. (Currently Amended) An optical device having a first layer functioning as an optical waveguide layer and a second layer functioning as a base layer, formed by a method comprising the steps of:

- providing a resist layer on a surface of a first medium;
- removing portions of the resist layer to form vacancies;
- removing portions of the first medium corresponding to the vacancies to create cavities in the first medium, the depth of the cavities being less than a thickness of the first ~~medium;~~ medium, and thereby defining the first layer and second layer;
- filling the cavities in the first medium with a second ~~medium;~~ medium, thereby forming the optical waveguide layer; and
- removing the resist layer and any excess film of the second medium from the surface of the first ~~medium;~~ medium.

B6
Sb wherein the index of refraction of the second medium is greater than the index of
refraction of the first medium.

B7
19. (Currently Amended) An optical device comprising:
a first medium having a thickness, the first medium at least partially forming a an
integrated first layer and a second layer of the optical device, the first layer defining a
plurality of periodically spaced hollow portions, the hollow portions having a depth less
than the thickness of the first ~~medium;~~ medium, the first layer having a depth identical to
the depth of the hollow portions; and
a second medium being dispersed within the hollow portions,
wherein the first layer of the optical device forms a photonic crystal, and
wherein the second layer of the device is formed at least partially of the first
medium.

B8
21. (Currently Amended) An optical device according to claim 20 19 wherein
the index of refraction of the second medium is greater than the index of refraction of the
first medium.